Instructions for Form ARD-2, *Information Required for Permits for Fuel Burning Devices*

This form is to be completed for applications for devices that are engineered to burn fuel for the primary purpose of producing heat or power (boilers and engines). A separate form must be completed for each device. Please fill out all sections completely using "not applicable (n/a)" or "unknown" as applicable.

I. EQUIPMENT INFORMATION

Device Description: State the name that you use to identify the device (e.g. Boiler #1, Crusher 100 generator). This name should be noted on all subsequent pages of the form in the upper left corner.

Date Construction Commenced: State the date that construction of the device was originally started. For a new device, state the anticipated construction start date.

Device Start-Up Date: State the date that the device started operating at this location. If the application is for a new device that is not yet operational, list the anticipated start up date.

A. Boiler: This section is specific to boilers. If the form is for an engine, check the "Not Applicable" box and skip to section B.

State the following information in the appropriate spaces. The information can normally be found on the boiler's nameplate.

Boiler Manufacturer;
Boiler Model Number;
Boiler Serial Number;
Gross Heat Input Nameplate Rating in units of million British thermal units per hour (MMBtu/hr);[1]
Burner Manufacturer;
Burner Model Number;
Burner Serial Number; and
Potential Fuel Flow Rate (this is the maximum amount of fuel that the boiler can burn)[1] – check the box noting the appropriate units:

- gal/hr = gallons per hour
- mmcf/hr = million cubic feet per hour
- ton/hr = tons per hour

Check the appropriate boxes to identify the type of burner used on the boiler and the boiler's combustion type.

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[1] Heating Values for common fuels – these numbers may be used to convert the fuel flow to the heat input rate of a device.

- #6 fuel oil = 150,000 Btu/gal
- #4 fuel oil = 145,000 Btu/gal
- #2 fuel oil = 140,000 Btu/gal
- diesel fuel = 137,000 Btu/gal
- natural gas = 1,020 Btu/cf
- propane (LPG) = 94,000 Btu/gal

B. Internal Combustion Engines/Combustion Turbines: This section is specific to engines. If the form is for a boiler, check the "Not Applicable" box and skip to section C.

Note: If this device is used solely as a source of backup power in the case of a primary power shut down, then the device may be eligible for coverage under the General State Permit for Emergency Generators. The following link gives more information on the General State Permit: http://des.nh.gov/ard/whatprmt.htm

State the following information in the appropriate spaces:

Engine Manufacturer
Engine Model Number
Engine Serial Number
Fuel Flow Rate[1] (this is the maximum amount of fuel that the engine can burn) – check the box noting the appropriate units:
gal/hr = gallons per hour
mmcf/hr = million cubic feet per hour
Output Rating – check the box noting the appropriate units:
hp = horse power
kW = kilowatts
Reason for Engine Use – state the purpose of this device, for example:
Electric power generator for crushing plant;
Direct drive engine for air compressor

C. Stack Information:

Is unit equipped with multiple stacks? If the answer is yes, then please provide data for each stack. You may reference attached information if applicable.

Identify other devices on this stack: In some cases a facility may have multiple devices exhausted out of one stack. If this is the case, note the other devices exhausted through this stack.

Is Section 123 of the Clean Air Act applicable? Section 123 of the Clean Air Act limits the use of dispersion techniques, such as merged gas streams, intermittent controls, or stack heights above Good Engineering Practice (GEP), to meet air quality standards. If your facility has employed any of these methods for the specific purpose of increasing plume dispersion, Section 123 may apply.

Is stack monitoring used? If yes, describe. Examples of stack monitoring include CEMs (continuous emissions monitors) and opacity meters.

Is stack capped or otherwise restricted? If yes, describe. Flapper valves and other devices which do not restrict the exhaust flow while the device is operating are not considered obstructions.

Stack exit orientation: Check the box to note the direction of the exhaust as it exits the stack: vertical, horizontal or down.

State the following information in the appropriate spaces:

Either the stack's inside diameter in feet or the exit area in square feet;
Height of the stack discharge in feet above ground level;
Exhaust flow rate in actual cubic feet per minute (acfm);
Exhaust velocity in feet per second (ft/sec); and
Exhaust temperature in degrees Fahrenheit.

II. OPERATIONAL INFORMATION

A. Fuel Usage Information: List applicable information for the fuel burned in this device.

1. **Fuel Supplier:** List the name, address, and telephone number for the primary fuel supplier for this location.

2. **Fuel Additives:** For any fuel additive used in this device, list the manufacturer's name, address and telephone number. Identify the name of the additive and how much is used (gallons of additive used for every 1000 gallons of fuel used).

   If no fuel additives are used in this device, write "Not Applicable" and skip to Section 3.

3. **Fuel Information:** For each type of fuel utilized in the device, state the following information in the table provided:

   Sulfur content of the fuel (either percent sulfur by weight or grains of sulfur per cubic feet of natural gas);

   Ash content of solid fuels;

   Moisture content of solid fuels;

   Heat rating of fuel with units (see footnote on page 1 for heating values of common fuels);

   Potential Heat Input in million British thermal units per hour (MMBtu/hr) – for boilers this number is typically the same as the nameplate rating listed in Section I.A.

   Actual Annual Usage – state the actual amount of fuel that is typically used in this device along with the units (e.g. gal/yr). Note that this number will not be used as a permit restriction for this device, but will assist DES in determining an appropriate restriction for the facility if one is required.

B. Hours of Operation

State the typical, actual operating hours for this device in terms of hours per day and days per year.

III. POLLUTION CONTROL EQUIPMENT

If there is no pollution control equipment associated with the device, check the "Not Applicable" box and skip to Section IV.

A. Type of Equipment: Check off the type of pollution control equipment utilized on this device.

B. Pollutant Input Information

List the total emissions from this device, prior to the pollution control equipment. A reference can be made to an attachment that contains this information.

Actual emissions should reflect the normal operations of the facility.

Potential emissions should reflect the maximum capacity of the source without regard to restrictions on hours of operation or on the type or amount of material combusted (i.e. what the emissions would be if the device ran at maximum capacity, lb/hr and for 8,760 hours per year, ton/yr)

Check the appropriate box stating the method used to determine the emissions listed. Note that a copy of all calculations is required to be submitted as part of the application package. Calculations should include the emission factors used (if applicable) and the source of the factors (i.e. vendor data, AP-42)

C. Operating Data

1. **Capture Efficiency:** state the percent of emissions captured by the exhaust system and check if this number has been verified by test data or by calculation.

2. **Control Efficiency:** state the percent of emissions controlled by the control equipment and check if this number has been verified by test data or by calculation.

3. Normal Operating Conditions

For the pollution control device state the appropriate operating factors that will be monitored for the source. For example, if the pollution control device is a wet scrubber, the appropriate parameters to monitor are pressure drop across the scrubber and the liquid recycle rate.

A range of numbers may be entered (i.e. pressure drop can be listed as between 2 to 4 inches of water).

IV. DEVICE EMISSIONS DATA

List the total emissions from this device, after pollution control equipment, if applicable. A reference can be made to an attachment that contains this information.

Actual emissions should reflect the normal operations of the facility.

Potential emissions should reflect the maximum capacity of the source without regard to restrictions on hours of operation or on the type or amount of material combusted (i.e. what the emissions would be if the device ran at maximum capacity, lb/hr and for 8,760 hours per year, ton/yr)

Check the appropriate box stating the method used to determine the emissions listed. Note that a copy of all calculations is required to be submitted as part of the application package. Calculations should include the emission factors used (if applicable) and the source of the factors (i.e. vendor data, AP-42)